

Appln. Serial No. 10/692,775
Amendment Dated September 21, 2006
Reply to Office Action Mailed June 21, 2006

REMARKS

In the Office Action dated June 21, 2006, claims 16 and 17 were rejected under 35 U.S.C. § 101; and claims 1-27 were rejected under § 102 over U.S. Patent No. 5,412,568 (Schultz).

REJECTION UNDER 35 U.S.C. § 101

The Office Action rejected claims 16 and 17 under 35 U.S.C. § 101 as being directed to non-statutory subject matter. The Office Action asserted that the steps of the claims “show no clear and concrete and tangible results.” 6/21/2006 Office Action at 3.

Applicant respectfully disagrees. As explained by *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, 149 F.3d 1368, 1373, 47 U.S.P.Q.2d 1596 (Fed. Cir. 1998),

Unpatentable mathematical algorithms are identifiable by showing they are merely abstract ideas constituting *disembodied* concepts or truths that are not “useful.” From a practical standpoint, this means that to be patentable an algorithm must be applied in a “useful” way. (emphasis added).

The court further held that “the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula, or calculation, because it produces ‘a useful, concrete and tangible result’--a final share price momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.” *Id.* Similarly, in *AT&T Corp. v. Excel Communications Inc.*, 172 F.3d 1352, 50 U.S.P.Q.2d 1447 (Fed. Cir. 1999), the court held that a method claim relating to using a Boolean algorithm to determine the value of a PIC indicator is directed to statutory subject matter, because the PIC indicator represents information about a call recipient's PIC, which the court said was a useful, non-abstract result. 172 F.3d at 1358.

In claim 16, the data samples that are taken and stored, and the parameters that are computed and compared, clearly produce a useful, concrete, and tangible result, namely determining whether a command signal has been issued at a desired location in the well. In view of the foregoing, it is respectfully requested that the § 101 rejection be withdrawn.

REJECTION UNDER 35 U.S.C. § 102

It is respectfully submitted that amended independent claim 1 is not anticipated by Schultz.

Claim 1 recites that the controller is responsive to a repeating command signal that is a repeat of a first command signal, where the first and repeating command signals are previously unknown to the controller, and the controller is responsive to the repeating command signal by actuating a tool. Claim 1 further recites that the controller is configured to distinguish the first command signal from noise based on characteristics of the first command signal.

No such distinguishing is performed in Schultz. Schultz describes programming a tool after it has been placed in the well by teaching the tool what a distorted form of a preferred command signal will look like. Schultz, 15:47-50. A subsequently received operating command signal is then compared to this stored distorted command signal to determine whether an operation is to be activated. Schultz, 16:44-52. In other words, Schultz describes first programming the tool with a distorted command signal, and then using this distorted command signal as a reference to compare to subsequent command signals. There is absolutely no teaching or hint in Schultz of distinguishing a command signal from noise based on characteristics of the command signal, as recited in claim 1. Therefore, claim 1 is clearly not anticipated by Schultz.

Dependent claims of claim 1 are allowable for at least the same reasons as claim 1. Moreover, claim 28 (which depends from claim 1) further recites that the controller distinguishes the first command signal from noise by comparing a characteristic of a first portion of the first command signal to a characteristic of a second, different portion of the first command signal. This additional feature of claim 28 is also not disclosed by Schultz.

Claim 29 (which depends from claim 28) recites that the compared characteristics include a mean of the first portion and a mean of the second portion; and claim 30 (which depends from claim 28) recites that the compared characteristics comprise a standard deviation of the first portion and a standard deviation of the second portion. Schultz clearly does not disclose the subject matter recited in claim 29 or 30.

With respect to independent claim 10, Schultz does not disclose a microprocessor detecting that the command signal has been repeated by calculating a correlation coefficient and comparing the correlation coefficient to a reference value, where the correlation coefficient is calculated based on *comparing a first portion of the command signal with a second portion of the command signal*.

There is no computing of the correlation coefficient in the manner recited in claim 10 in the technique described in Schultz.

Independent claim 16 is also allowable over Schultz, since Schultz does not disclose computing parameters using data samples in a buffer, where the computed parameters comprise a first parameter for data samples *in a first portion of the buffer*, and a second parameter for data samples *in a second, different portion of the buffer*. Claim 16 further recites comparing the first and second parameters (associated with data samples in different portions of the buffer), and deciding whether the data samples correspond to a command signal based on the comparing. The above combination of acts is clearly not disclosed by Schultz.

Independent claim 18 is also not disclosed by Schultz. Claim 18 recites recording samples while the signal is being sent in a buffer in the controller to create upper and lower profiles *in the buffer*. Claim 18 further recites comparing the upper profile (in the buffer) to the lower profile (in the buffer) to determine whether the profiles constitute a match, where the match indicates the repeating signal is a command signal. The Office Action, in the rejection of claim 18, cited column 2, lines 17-25, of Schultz as constituting the comparing act of claim 18. The cited passage refers to the comparison of a previously stored command signal with a subsequently received command signal for verification purposes. This is completely different from comparing profiles in *the buffer* to determine whether the profiles constitute a match, where the match *indicates the repeating is a command signal*. Thus, the match recited in claim 18 is not used for the purpose of matching one command signal to a previously stored command signal; rather, the matching of claim 18 is for determining whether the repeating signal is even a command signal.


Dependent claims are allowable for at least the same reasons as corresponding independent claims.

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In view of the foregoing, it is believed that all claims are in condition for allowance, which action is respectfully requested. The Commissioner is authorized to charge any additional fees and/or credit any overpayment to Deposit Account No. 20-1504 (SHL.0302US).

Respectfully submitted,

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